Simplified orthopaedic surgery: From concept to prototypes for clinical tests

Simplified orthopaedic surgery (SOS) is a new thing we envisaged here, and it is just what it sounds like. Using new technology created in our research laboratory, we aim to make knee replacement surgery faster, easier, more accurate, and less costly, a thrilling concept we hope. What’s even more exciting is that recently the lab has received additional funding that will allow us to take this research to the next level, transitioning from a bench top experimental pilot to a clinically viable prototype.

Dr. Hani Haider, professor and director of the department’s Orthopaedics Biomechanics and Advanced Surgical Technologies Laboratory, together with research staff and department surgeons, created this Nebraska-born technology that could revolutionize orthopaedic surgery.

Our concept reduces the need for bulky alignment instruments (jigs), and uses ‘GPS style navigation technology’ to help guide the hands of a surgeon during surgery. Our researchers developed groundbreaking software to integrate data from CAT scans to create patient-specific, 3-D bone models on a computer screen, as well as models of the surgical instruments and implants to be utilized during surgery. An infrared camera system provides real-time positioning data allowing surgeons realistic 3-D tracking and display of the patient’s bone, hand-held surgical instruments, and implants. This permits more accurate bone cutting and better alignment of implants, with less trauma to the soft tissue and bone, which can also translate to faster recovery times for patients.

Although there have been other computer-aided navigation systems,

2011 ASG Traveling Fellows Visit UNMC

DR. SUSAN SCHERL (2010 ASG FELLOW), TRANSITIONS TO HOST FOR 2011 EUROPEAN ASG FELLOWS’ FIRST TRIP TO MIDWEST

UNMC’s Department of Orthopaedic Surgery was the third stop on this year’s American Orthopaedic Association Austrian-Swiss-German (ASG) Traveling Fellows’ itinerary. In February, the ASG Traveling Fellows spent two days observing clinics and surgeries, taking in the local fare, and even got treated to a special visit of the penguin enclosure at the world-class Henry Doorly Zoo.

ASG Fellows present at pediatric orthopaedic conference: Dr. Susan Scherl (middle-right) with ASG Fellows (left to right) Drs. Sandro Fucentese, Catharina Chiari, & Joern Michael.
It’s springtime… and new technology is blooming.

Welcome to the latest issue of Breaking News.

Spring is always a time of new and exciting things, ‘budding’ ideas, and often transition and transformation. Springtime in our orthopaedic laboratory is no exception, where we are getting ready to transition new technology created in our lab, into a prototype to be used in clinical trials. I invite you to read about new developments with this Nebraska-born technology, which we hope may one day revolutionize orthopaedic surgery, in our article on “Simplified orthopaedic surgery” (page 1).

On a similar note, what better time than the onset of spring to announce our support of live Green (see page 4) to learn how you can sign up for an electronic version of Breaking News and help our department go green!

We are proud to report that in the fall of last year, Operation Walk/Nebraska traveled to Antigua, Guatemala, and partnered with Operation Walk/Canada to perform hip and knee replacements/revision free of cost to individuals who were truly in need (see photos in “Department Life” on page 11). It was a highly rewarding experience and the gratitude received was overwhelming.

However, our recent trip was only a small puzzle piece in a much larger picture. The need remains great, and we look forward to embarking on a second mission to Antigua this fall. If you would like more information on how you can help support us in this ongoing mission, please contact Susan Siebler at 402-559-4251 or Betsy Berentson with the University of Nebraska Foundation at 402-502-4115.

This year’s graduation ceremonies are set for June 17-18th. It will be here before you know it, so take a minute to Save the Date! We welcome Dr. C. Parker Gibbs as this year’s featured speaker. Learn more about Dr. Gibbs and the graduation festivities on pages 6 & 7. We hope to see you there!

Kevin L. Garvin, M.D.
Professor and Chair
Orthopaedic Surgery and Rehabilitation

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This publication is available online.
none of them have been accepted widely
too: have the potential to aid in military applications


The United States Navy, for example, has
recognized the far-reaching potential of this new
technology for various reasons:
• Military personnel undergo a strenuous
level of exercise and often carry significant
extra weight in weapons and protective gear,
which predisposes them to orthopaedic
injuries.
• Although personnel can be protected by
body armor (bullet proofing), their upper and
lower limbs and joints are often left exposed;
therefore orthopaedic injuries in these limbs
and joints are more prevalent.
• An increasing number of active military
personnel and retired veterans suffer from
arthritis and lower bone density upon ageing,
which can be associated with orthopaedic
trauma fractures and joint arthropathies.

The improvements our technology can offer over
conventional orthopasty are significant and
have the potential to aid in military applications
too:
• Elimination of implant-specific jigs to suit
individual surgeons (less expensive for military
to purchase, maintain and transport)
• Faster (shorter surgery duration)
• Smaller incision; no bulky instruments in
the way and more precise cuts
• Less anesthesiologist (reduces risk to patient)
• Faster healing time
• Possibility for remote expert guidance for
surgical planning via modern telemedicine
advances
• Online training/guidance by experts using
the knowledge-based software system

The United States Navy has contracted this
stage of research to our laboratory. The Naval
Health Research Center (NHRC) has granted
funds for a two-year study for Dr.
Haider and his team to propel this technology
out of the experimental pilot phase into a more
advanced prototype, viable for use in clinical
trials.

"Our team is very excited about this project," said Dr. Haider. "We believe this could one
day change the way surgeons routinely
perform knee replacement surgery and bone
osteotomies. I am thrilled by the prospect of
less reliance on expensive, bulky, sterilizable,
implant-specific and sometimes intimidating
mechanical instruments. The most exciting thing
for me, however, is that everyone knows (or will
know!) that Nebraska is the birth place of this
orthopaedic technology, and this will make me more proud
for me, however, is that everyone knows (or will
know!) that Nebraska is the birth place of this
orthopaedic technology, and this will make me more proud
of my new home and that of my wife and three
Nebraskan kids. If we continue to be supported,
this project may usher in a new era of "smart"
hand-held orthopaedic instruments, not only
suggestively guiding but actually preventing the
surgeon from being anything but excellent."

"The education and cultural exchange is valuable for both
the fellows and for our department,
and participating in these kinds of programs also gives the department
some visibility and recognition in the
wider orthopaedic community."

- Dr. Susan Scherl
Professor, Orthopaedic Surgery

They [the fellows] have all been to
the coasts and bigger cities before, so
Omaha was something very different for
them. They were interested in seeing the
Midwest,“ commented Dr. Scherl.

Their visit included a full scientific and
social program. The fellows (listed,
right) arrived on Tuesday, February
22nd, and were treated to a dinner of
Wienerschnitzel and red cabbage at Dr.
Scherl’s home (their first home-cooked
meal, and first German food, after nearly
4 weeks of travel).

On Wednesday morning the fellows
each presented at pediatric orthopaedic
conference (topics listed, right). The
remainder of that morning was spent
shadowing in clinic and/or surgery.

"Dr. Fucentese really enjoyed observing
Dr. Miguel Daccarett do a Fulkerson
osteotomy, and Dr. Chiari saw some
patients with unusual skeletal dysplasias
in clinic with Dr. Paul Espojo,“ said Dr.
Scherl.

On Wednesday afternoon, Dr. Scherl had
coordinated a special visit to the Henry
Dooley Zoo. To even her surprise, they were
all treated to a very unique experience,
when the zoo keeper allowed them to go
inside the penguin enclosure. The visit
wrapped up with dinner at M’s Pub.

"I think the fellows had a great time," said Dr. Scherl. “The education and
cultural exchange is valuable for both
the fellows and for our department,
and participating in these kinds of programs also gives the department
some visibility and recognition in the
wider orthopaedic community. Plus, it’s a chance to show
off our institution and community, and it
really is an honor.”

Help us GO GREEN! Get Breaking News via e-mail.
This year, UNMC unveiled a new program called UNMC LiveGreen, and
we want to do our part to support this effort. Soon we will be starting an
electronic version of Breaking News and encourage you to jump on the GO
GREEN bandwagon!

To sign up, simply e-mail dmeyer@unmc.edu and let us know that you
want to receive Breaking News by e-mail, rather than a paper copy. Don’t worry
though, we won’t stop sending a paper copy unless you tell us to!

SOS continued from pg 1

2011 ASG FELLOWS

Dr. Catharina Chiori
Vienna, Austria
Specialty: Pediatrics
Presented: “Long Term Results of Chiori
Osteotasty”

Dr. Sandro Fucentese
Zürich, Switzerland
Specialty: Trauma & Reconstruction
Presented: “Large Metaphyseal Volume
Fracture Prosthesis for Treatment of
Complex Humeral Fracture”

Dr. Joern Michael
Cologne, Germany
Specialty: Reconstruction & Pediatrics
Presented: “Total Hip Replacement in
Congenital Dislocation and Dysplasia of the
Hip”

Dr. Marcus Jäger
Düsseldorf, Germany
Specialty: Reconstruction
(unable to attend)

See the ASG Fellows’
full itinerary below

AAOS Annual Meeting
San Diego
2/14 - 2/20

University of Iowa
Iowa City
2/20 - 2/22

University of Nebraska Medical Center
Omaha
2/22 - 2/24

Johns Hopkins
Baltimore
2/24 - 2/27

Brigham and Women’s
Boston
3/27 - 3/29

University of Massachusetts
Worcester
3/2 – 3/5

Hospital for Joint Disease
New York
3/5 - 3/10

Brown University
Providence
3/8 - 3/10

2011 ASG Fellows continued from pg 1

Dr. Susan Scherl, who was an ASG Traveling Fellow in 2010, hosted the
fellows during their recent visit. Through
her travels last year, she met several
European physicians who had applied for
the same fellowship. When two of them
were accepted, they requested a stop in
Omaha.

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the fellows and for our department,
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Dr. Susan Scherl
Professor, Orthopaedic Surgery

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right) arrived on Tuesday, February
22nd, and were treated to a dinner of
Wienerschnitzel and red cabbage at Dr.
Scherl’s home (their first home-cooked
meal, and first German food, after nearly
4 weeks of travel).
Congratulations to the graduates of 2011

Please join us in congratulating the upcoming graduates of 2011. Listed below are their names and upcoming fellowships.

JASON M. ERPLEDING, M.D.
Medical College of Wisconsin Hand Surgery Fellowship, Milwaukee, WI

DANIEL E. FIRESTONE, M.D.
Indiana Hand to Shoulder Center Fellowship, Indianapolis, IN

MICHAEL S. DEE, M.D.
San Diego Knee and Sports Medicine Fellowship, San Diego, CA

MICHAEL J. CARLSON, M.D.
Southern California Orthopaedic Institute (SCOI) Fellowship, Van Nuys, CA

CLASS OF 2011:

Left to right: Graduating residents, Drs. Jason M. Erpelding, Daniel E. Firestone, Michael S. Dee, and Michael J. Carlson.

Dr. C. Parker Gibbs is featured speaker for June graduation ceremonies

C. PARKER GIBBS, M.D.
Associate Professor, Orthopaedic Oncology
Department of Orthopaedics and Rehabilitation
University of Florida

The department is proud to announce Dr. C. Parker Gibbs as the featured speaker for this year’s graduation ceremonies to be held June 17th & 18th. Dr. Gibbs specializes in Orthopaedic Oncology and is an associate professor in the Department of Orthopaedics and Rehabilitation at the University of Florida in Gainesville, Florida.

Dr. Gibbs attended medical school at the University of Florida, College of Medicine. He went on to complete a general surgery internship and an orthopaedic surgery residency at the University of Colorado in Denver, Colorado. Fellowships, Dr. Gibbs completed a fellowship in orthopaedic oncology at the University of Chicago in Chicago, Illinois, as well as a fellowship in orthopaedic oncology research at the same institution.

Dr. Gibbs is the director of the University of Florida Musculoskeletal Oncology Laboratory and holds an RO1 grant from the NCI/NIH to study intra-tumoral heterogeneity in osteosarcoma. His clinical specialties are in limb salvage surgery in patients with musculoskeletal tumors, both benign and malignant. His research interests focus on the role of stem-like cells in osteosarcoma and their implications for tumorigenicity and malignant reversion.

Currently, he is a member of the Connective Tissue Oncology Society, the American Society of Clinical Oncology, the American Academy of Orthopaedic Surgeons, and the American Orthopaedic Society, amongst several others. He has authored 45 peer reviewed publications, seven book chapters, and presented his work at numerous national and international meetings. In addition, he serves as an oral examiner for the American Board of Orthopaedic Surgery.

C. PARKER GIBBS, M.D.

Graduation Celebration June 17-18

SAVE THE DATE!

FRIDAY, JUNE 17, 2011
8:00 a.m. to 11:00 a.m.
Resident Presentations: Michael F. Sorrell Center for Health Science Education
UNMC Campus (42nd and Emile)
Room 1005
1:00 p.m.
Golf: The Players Club
12101 Deer Creek Drive
Omaha, NE

SATURDAY, JUNE 18, 2011
8:00 a.m. to 11:00 a.m.
Musculoskeletal Oncology Symposium
Michael F. Sorrell Center for Health Science Education
UNMC Campus (42nd and Emile)
Room 1005
6:00 p.m.
Banquet: Omaha Country Club
6900 Country Club Road
Omaha, NE

Welcome to the Class of 2016

Match Day results are in! The new residents who will be joining the program are listed below, along with their medical schools. Please join us in welcoming the Class of 2016.

PAUL HONG
UNIVERSITY OF ILLINOIS - PEORIA

KAITLIN NEARY
CREIGHTON UNIVERSITY

PAUL NIELSEN
UNIVERSITY OF MISSOURI - COLUMBIA

SCOTT VINCENT
UNIVERSITY OF NEBRASKA
San Diego, California was the location for this year’s Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS) held February 15-19th, and the Nebraska Orthopaedic Alumni Reception on February 17th. About 30 alumni and their guests gathered at the Urban Bar & Grill to catch up with fellow alumni and friends.

During the AAOS meeting, faculty and residents gave various presentations, and participated in specialty day symposiums and instructional course lectures. A full list of participants is listed below:

SYMPOSIUMS:
Fehring, E.V.: Instructional Course and Symposium Faculty in Symposium M: Hot Topics and Controversies in Primary Shoulder Arthroplasty

SPECIALTY DAY SYMPOSIUMS:
Garvin, K.L. (Presenter): “What is the Effect of Resistant Bacteria and New Antibiotics in Prosthetic Joint Infection?” during Hip Society and AAHKS Specialty Day Symposium


INSTRUCTIONAL COURSE LECTURES:

Sanford Orthopaedics presents the Symposium Topics

NOVEMBER 2010
1 Dr. Karl Bergmann
CUMC
Omaha, NE
"Acute Evaluation of Pelvic Ring Injuries"

19 Resident Research Forum
Dr. Joshua Jacobs
Rush University Medical Center
Chicago, IL
"Metal on Metal Total Hip Arthroplasty"

22 Dr. Kimberly Apker
UNMC Radiology
Omaha, NE
"Shoulder MRI"

29 Dr. Timothy Burd
Nebraska Spine Center
Omaha, NE
"Total Disc Arthroplasty"

DECEMBER 2010
6 Dr. Justin Siebler
CUMC
Omaha, NE
"Ankle Fractures and Syndesmotic Injury"

MARCH 2011
14 Dr. Jennifer Adams
UNMC Anesthesia
Omaha, NE
"Regional Anesthesia"

23 AOA A-S-G Traveling Fellows
Dr. Catharina Chiari
Vienna, Austria
"Long Term Results of Chiaro Osteotomy"

Dr. Sandro Fucentese
Zürich, Switzerland
"Large Metaphyseal Volume Fracture Prosthesis for Treatment of Complex Humeral Fracture"

Dr. Joern Michael
Cologne, Germany
"Total Hip Replacement in Congenital Dislocation and Dysplasia of the Hip"

Dr. Marcus Jäger
Düsseldorf, Germany
(unable to attend)

Providing a well-rounded educational experience for our residents means bringing in visiting speakers who can share their expertise on a variety of topics. Annual contributions to the department’s Development Fund allow us to continue to bring guest speakers who offer new and innovative ideas in surgical techniques, research topics, and patient care.

LISTED TO THE RIGHT, ARE THE NAMES AND TOPICS OF ALL VISITING SPEAKERS THAT PRESENTED IN THE DEPARTMENT OF ORTHOPAEDIC SURGERY FROM NOVEMBER 2010 TO APRIL 2011.

JANUARY 2011
31 Dr. Robert Recker
CUMC
Omaha, NE
"Atypical Fractures and Antiremodeling Therapy"

FEBRUARY 2011
7 Jason Roberts
UNMC Physical Therapy
Omaha, NE
"Physical Therapy for an Orthopaedic Patient"

14 Dr. Joshua Jacobs
Rush University Medical Center
Chicago, IL
"Metal on Metal Total Hip Arthroplasty"

Visiting Speakers Expand Resident Education

Mormino, M.: Course Faculty. Orthopaedic Trauma Association Advanced Trauma Techniques for Residents Course-Phoenix, AZ, January 2011.


PRESENTATIONS, REGIONAL AND LOCAL:


In the fall of 2010, Operation Walk-Nebraska & Operation Walk-Canada teamed up in Antigua, Guatemala, to provide free hip and knee replacements to impoverished patients with debilitating joint disease. Left: Department Chairman, Dr. Kevin Garvin and Dr. Curtis Hartman (orthopaedic surgeons, UNMC) with a patient who underwent a hip revision. Right: John Cavanaugh (nurse anesthetist, UNMC) with a rheumatoid arthritis patient who underwent bilateral knee replacements. To learn more about Operation Walk, go to www.operationwalk.org.

WE WANT TO HEAR FROM YOU!

Last chance to give your feedback on the Orthopaedic Department’s 2010 Biennial Report!

Your feedback counts! In recent months you should have received a copy of our 2010 Biennial Report. Some of you may have already completed our survey, however we need everyone’s input to make this the best publication possible! Please take a moment to tell us how you thought we did.

Simply go to www.UNMCOrthoMotion.com and complete the short survey. THANK YOU!
Visit us online at www.unmc.edu/orthosurgery to view past issues of this publication or to learn more about the latest news in our department.

in this issue

Simplified orthopaedic surgery (SOS)
Transitioning a Nebraska-born technology from an experimental pilot tested in the laboratory, to a clinically viable prototype.

2011 ASG Traveling Fellows
Dr. Susan Scherl and the Department of Orthopaedic Surgery and Rehabilitation hosted the 2011 AOA-ASG Traveling Fellows’ first trip to the Midwest.

Save the Date! Graduation celebration to be held June 17-18
Dr. C. Parker Gibbs, associate professor in the Department of Orthopaedics and Rehabilitation at the University of Florida in Gainesville, will be this year’s featured graduation speaker.
Publications, Presentations and Honors

Department faculty members present many lectures, seminars, and courses at local and regional, as well as national and international meetings. They also serve in leadership positions and offices for local, state, national and international organizations. Here are some of our faculty and staff’s presentations and publications, awards and achievements, offices held, and other professional activities from November 2010 – May 2011.

**PUBLICATIONS:**


**Demetri, G; Antonia, S; Benjamin, R; Bui, M; Casper, E; Conrad, EU 3rd; DeLaney, T; Ganjoo, K; Heslin, M; Hutchinson, R; Kane, JM 3rd; Letson, G; McGarry, S; et al.:** Bone Cancer. *J Natl Compr Canc Netw*, 8(6): 688-712, June 2010.


**BOOK CHAPTERS AND REVIEWS:**

**Dr. Kevin Garvin,** who was named as one of America’s Top Doctors, 2011-2012.

**Congratulations to Drs. Kevin Garvin, Edward Fehringer, Matthew Morrow, Paul Esposito, Brian Hasley, Susan Scherl, and N. Åke Nyström, who were selected as Best Doctors 2011-2012.

**Kudos to Dr. Michael Carlson, HO V, who was the recipient of a Mid-America Orthopaedic Association’s (MAOA) educational grant to attend the 2011 MAOA Annual Meeting.

**Kudos to Dr. N. Åke Nyström, who retired from the Department of Orthopaedic Surgery and Rehabilitation on April 30, 2011.

**Kudos to Dr. Glen Ginsburg, who retired from the Department of Orthopaedic Surgery and Rehabilitation on March 15, 2011. Dr. Ginsburg will continue to hold an appointment as a volunteer faculty member within the department.

**MEMBERSHIPS AND OFFICES HELD:**

Dr. Beau Konigsberg became a member of Medical Student Admissions Committee, University of Nebraska Medical Center, College of Medicine, May 2011.

**Dr. Paul Esposito** became a section editor of the online oncology module *Orthopaedic Hyperguide*, 2011.

Dr. Susan Scherl is a Member of the American Academy of Orthopaedic Surgeons/Pediatric Orthopaedic Society of North America Surpaco and Humerus Fracture Work Team. The team drafted a clinical practice guideline for the treatment of pediatric supraco and humerus fractures, 2011.

**Dr. Edward Fehringer** became an Active Member of the American Shoulder and Elbow Surgeons, October 2010.

**Dr. Matthew Morrow** became a Consultant Reviewer for the *Journal of Surgical Education, 2010-present.

**RECENT GRANTS RECEIVED:**

**Esposito, P.:** Tiny Bones Program, Wm Patrick Foundation, December 2010. Principal Investigator.

**Esposito, P.:** Support for Research Assistant, Awarded by James Roberts, December 2010. Principal Investigator.

**Haider, H.:** A Short Study of the Frictional Characteristics of Two Polyurethane Materials against Canine Cartilage, Collaborative research, Arthrex, Inc./FL. April - June 2011. Principal Investigator.

**PRESENTATIONS, INTERNATIONAL AND NATIONAL:**

**Dr. Sean McGarry** was invited to serve on the Editorial Board of *ORTHOPEDICS, January 2011.

**Dr. Kevin Garvin** is a Member of the Board of Directors (2nd term) for the Omaha Sports Commission, 2011-2014.

**Dr. Sean McGarry** was appointed as a section editor of the online oncology module *Orthopaedic Hyperguide*, 2011.

**Dr. Susan Scherl** is a Member of the American Academy of Orthopaedic Surgeons/Pediatric Orthopaedic Society of North America Surpaco and Humerus Fracture Work Team. The team drafted a clinical practice guideline for the treatment of pediatric supraco and humerus fractures, 2011.

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**PRESENTATIONS, INTERNATIONAL AND NATIONAL:**


Mormino, M.: Course Faculty/Podium Presentation: Staying Out of Trouble. AO-AISF Advanced Controversies in Fracture Care, Sun Valley, ID, March 2011.


